CASPER REGION

Bates Creek Watershed Restoration Project Phase 2009 (Goal 2) - Keith Schoup

During 2009, we mechanically treated 89 acres of conifer encroached aspen stands. The reason we did not accomplish more was due to a short field season because of increased precipitation and a change in contractors. The original contractor's production (acres per hour) began to decrease, which would result in an increase in cost per acre. In order to keep the cost per acre low and increase production, we hired a different contractor to finish out the field season. The new contractor was able to treat 89 acres in 14 working days utilizing two machines (Figures 1 and 2).

Figure 1. BOSS Reclamation rubber tired grinder, Barko 937.

Figure 2. BOSS Reclamation steel tracked grinder, LH 575.

- Mechanically treated 89 acres of conifer encroached aspen and chemically treated 960 acres of cheatgrass on Bates Creek Watershed Restoration Project.
- Mechanically treated 170 acres and chemically treated 1,564 acres on North Laramie Habitat Restoration Project.
- 6,500 acres of cheatgrass treatment in the Thunder Basin.
- Inventories and grazing plans on 3 properties.

In addition to mechanically treating 89 acres, 960 acres of cheatgrass was aerially sprayed in September. Ground applicators were used prior to this year, but due to the size of treatment area and the topography, we used a helicopter to apply Plateau® (Figure 3).

Figure 3. Wyoming Helicopter, LLC applying Plateau® herbicide.

Beginning in 2010, the Bates Creek Watershed Restoration project will be combined with the North Laramie Range Habitat Restoration project, which will create the North Laramie Range Watershed Restoration Initiative project. This change will not affect any proposed implementation efforts, future treatment techniques or vegetative communities proposed for treatment, but it will reduce the amount of funding proposals submitted, progress reports written and the amount of time spent tracking two different budgets. Furthermore, this step will benefit those landowners who currently have land proposed for treatment in the two different project areas by allowing them to deal with one set of paperwork instead of two. With that said, it is our intention to accomplish the following during 2010: mechanically treat 600 acres of conifer encroached aspen stands; chemically treat 630 acres of plains prickly-pear cactus and 1,700 acres of cheatgrass; and prescribe burn 1,600 acres of big sagebrush.

Aspen regeneration was monitored by randomly selecting a point within the treatment areas. This random point was marked using a UTM coordinate. From this point, a 66 foot long tape was laid out in each cardinal direction (north, east, south, and west). A 3.3 foot long PVC pipe was carried on the right-hand side of each tape to create a belt that is equivalent to 1/200 of an acre. Within this belt, the number of aspen trees and their height was recorded. Table 1 depicts the average number of aspen trees per acre 2-years post treatment. The fall burn has 58 percent more 0-3 feet tall aspen than the mechanical treatment and 74 percent more than the spring burn. But the mechanical treatment has the most 3-6 feet tall aspen than any other treatment.

Table 1. Aspen stems per acre following different treatment techniques and times of year.

		2 years	Post Treatment
Height (ft)	Mechanical	Fall Burn	Spring Burn
0 to 3	15,550	37,400	9,825
3 to 6	3,150	0	300
9 +			

The spring burn regeneration is being limited by the number of mature aspen trees that did not get killed by the fire. Therefore, the apical dominance process continues. Furthermore, the spring burn has an average of 300 aspen trees per acre that are 3-6 feet tall, which is an indication that this fire did not get hot enough to significantly impact soil moisture. The fall burn has the highest aspen regeneration, which we believe is due to the intensity of the fire. But the fall burn also does not have any aspen suckers 3-6 feet high, which may be an indication that the intensity of the fire significantly impacted soil moisture and nutrient availability. However, the mechanical treatment shows 15,550 aspen trees per acre in the 0-3 feet tall category, but also has 3,150 aspen trees per acre in the 3-6 feet tall category, which is a 90 percent increase over the spring burn (Figure 4). This may be attributed to the mulch layer that retains significant amounts of moisture, and also allows the soil to retain heat longer in the fall. Essentially, the mulch is creating a microclimate that is favorable for aspen tree growth. If this

growth scenario continues, we will reach our goal of 800 to 1,000 aspen stems per acre 10 feet tall in 10 years quicker than the other 2 treatment techniques.

Animal herbivory is occurring in each one of the monitoring sites, but the herbivory is not high enough or widespread enough to limit aspen growth. We occularly estimated use around 20 percent in those areas where our monitoring sites exist.

Figure 4. Aspen regeneration following mechanical treatment.

North Laramie Habitat Restoration Project Phase 2009 (Goal 2) - Keith Schoup

During 2009, we mechanically treated 170 acres of conifer encroached aspen stands. The reason we did not accomplish more was due to a short field season because of increased precipitation and a change in contractors. The original contractor's production (acres per hour) began to decrease, which would result in an increase in cost per acre. In order to keep the cost per acre low and increase production, a new contractor was hired to finish out the field season. The new contractor was able to treat 122 acres in 15 working days utilizing two machines (Figures 5 and 6).

Figure 5. BOSS Reclamation rubber tired grinder, Barko 937.

Figure 6. BOSS Reclamation steel tracked grinder, LH 575.

In addition to mechanically treating 122 acres, 1,564 acres of cheatgrass was aerially sprayed in September with Plateau® (see Figure 3). A prescribed burn had originally been planned for this area, but after further planning and coordinating efforts with the landowner, the prescribed burn option was removed. The reasons the prescribed burn was removed from consideration was the cost associated with burning and then a follow-up treatment of Plateau® herbicide to control cheatgrass, and the results of a research project that sought to determine the effect of Plateau® herbicide on true mountain mahogany using different application rates and surfactants. As a result of this research, we chose to apply Plateau® at a rate of 9 ounces/acre with methylated seed oil as the surfactant. According to our research plots, this approach should mimic a spring prescribed burn mosaic where 35 to 40 percent of the above ground true mountain mahogany plants are killed, but regeneration will occur from the root crowns that are not affected by the chemical. Furthermore, the cost associated with implementing this approach was 60 percent cheaper than implementing a prescribed burn with a follow-up treatment of Plateau® herbicide.

Bates Creek Watershed Restoration Project Tour (Goal 5) - Keith Schoup

In late June, a tour of the Bates Creek Watershed Restoration project was held to show project cooperators how much has been accomplished (Figure 7). The tour was well attended and nothing but positive feedback has been reported (Figure 8). The tour was used as an opportunity to promote the collaborative effort of habitat management with members of the general public, conservation groups, private landowners that are directly involved, as well as landowners that will be directly involved, state land management personnel and federal land management agencies.

Figure 7. Tour participants standing within aspen mechanical treatments.

Figure 8. Tour participants looking at prescribed burn response.

Thunder Basin Big Sagebrush Restoration Project (Goal 2) - Brian Jensen

In the fall of 2009, 6,500 acres were chemically treated on 8 different properties to control cheatgrass invasion (Figure 9). The project aims to reduce competition with desirable, perennial vegetation and eventually improve the overall range condition (Figure 10). Additional work and grazing management planning is ongoing with landowners operating nearly 100,000 acres (Figure 11). This effort has been coordinated with the Thunder Basin Grasslands Prairie Ecosystem Association (TBGPEA).

Figure 9. Contractors apply Plateau herbicide at 4 oz/acre using fixed-wing aircraft to control cheatgrass

Figure 10. Plateau treated acres on the right, untreated acres on the left. Cheatgrass control through 3 years has been over 95%.

Figure 11. Landowners and grazing association representative meet with Dr. Roy Roath to discuss grazing impacts and to develop a grazing management plan.

Deer Creek Ranch Range Improvement and Grazing Management Planning (Goal 2) - Brian Jensen

A ranch-wide watering system was developed on the property including 5 watering facilities, 2 storage facilities, and 53,800 ft. of pipe. This system will help the landowner implement a grazing plan cooperatively developed by multiple agencies (Figure 12).

Figure 12. Buried water pipeline for ranch-wide watering system to be used in year-round grazing system.

Midwest area Range Improvements and Grazing Management Planning (Goal 2) - Brian Jensen

Assisted in the range inventory and grazing plan development for a 33,500 acre ranch near Ormsby. Project also included the design of a watering system for approximately ½ of the ranch and plans for future developments. Assisted engineers with design of another watering system for a 32,000 acre ranch near Edgerton. The project will be completed in 2010 and hopefully lead to additional projects.

Northwest Converse County WHIP (Goal 2) - Brian Jensen

I provided design and management recommendations for guzzler installation as part of WHIP contract. In addition, management recommendations for wetlands on the property were addressed. Guzzler construction will be complete in 2010.

Natrona County Range Project Assistance (Goal 2) - Brian Jensen

I provided design assistance, planning, and project certification for 2 other projects involving 2 watering facilities, cross-fencing, and planning for future projects. I also, conducted follow-up monitoring on 2 past prescribed burn projects and monitoring for proposed brush management projects in Bates Hole (Figure 13).

Figure 13. Follow-up monitoring on the Sheep Creek property following a fall 2008 prescribed burn.

Bates Hole/Shirley Basin Grazing Management Planning (Goal 2) -Brian Jensen

Four landowners managing approximately 65,000 acres in Bates Hole and Shirley Basin worked with Dr. Roy Roath and agencies on identifying grazing values and challenges of their property. This will be the framework used as they begin to work on a grazing management plan (Figure 14).

Figure 14. Landowners and a NRCS representative tour a ranch with Dr. Roy Roath to discuss grazing values and challenges to implementing a grazing system.

Regional Public Information,Habitat Extension and Collaboration Efforts (Goals 2, 4 and 5) - Brian Jensen

- I provided assistance to extension biologist in Gillette on property inventory and draft management plan for a ranch in Weston County. I also provided follow-up assistance and planning for projects and grazing planning on a ranch in Campbell County.
- Thunder Basin Big Sagebrush Restoration Project - I worked with Robin Kepple to provide I&E materials related to the value of healthy rangelands and potential destructive effects of cheatgrass invasion for inclusion in Wyoming Wildlife News and The Mule Deer Foundation magazine.

Table Mountain WHMA food plots - Matt Pollock

At Table Mountain WHMA, 50 acres of food plots were planted, including 10 acres of Roundup®- ready corn (Figure 15), 10 acres of irrigated sunflowers and 20 acres of a seed mix, which contained foxtail millet, sorghum/sudangrass hybrid, alfalfa, sunflowers, and buckwheat. The Pine Bluffs Chapter of Pheasants Forever (PF) provided all the seed for the Table Mountain food plots.

Figure 15. Roundup®-ready corn food plots at Table Mountain WHMA.

The 20 acres of mixed seed was a special seed mix developed by PF. While created especially for pheasants, this seed mix is also extremely popular with doves and deer (Figure 16).

In most areas, food plots were planted in strips, which follow natural contours. The NRCS recommends this method for food plot development, as it provides greater "edge effect." All of the food plots are irrigated at Table Mountain.

Springer/Bump Sullivan WHMA food plots - Matt Pollock

Five acres of food plots were planted at Springer WHMA, including two acres of sunflowers, and three acres of sunflower/sorghum mix. PF provided approximately half of the seed we used for these plantings.

Figure 16. Pheasants Forever seed mix food plots at Table Mountain WHMA.

Rawhide WHMA Russian olive removal (Goal 2) - Matt Pollock

A coalition of interested parties formed to develop and implement plans to remove the state-designated noxious weed Russian olive (*Elaeagnus angustifolia*), which displays invasive characteristics in riparian areas (Figure 17). The coalition includes Goshen County Weed and Pest, 2-Shot Goose Hunt, PF, National Wild Turkey Federation (NWTF), NRCS, WGFD and members of the Goshen County Weed Coordinated Resource Management group. All members of the coalition provided input and expertise with regard to treatment methods. The coalition decided on a four-year time frame for the project.

Figure 17. Typical Russian olive infestation before treatment.

Follow-up treatments will continue indefinitely until the Russian olive trees are completely controlled. In year one of the project (2009), we treated 75 acres of Russian olive trees, using a "rip and tear" method (Figure 18). The "rip and tear" method involves yanking the tree and roots from the ground.

Figure 18. "Rip and tear" treatment of Russian olive trees.

Figure 19. Russian olive brush piles after treatment.

The removed trees are stacked in piles, which create thermal and screening cover for small mammals, birds, and deer (Figure 19). The NWTF provided $6,000.00; PF provided $4,000.00; Dean Stinemetz from the 2-Shot Goose Hunt donated his time and equipment for five acres worth of mechanical treatment.